

WHAT IS CLAIMED IS:

1. A method for providing access to a network system, wherein the network
5 system includes a plurality of access points coupled to a network, the method comprising:
a first access point receiving identification information from a portable computing
device, wherein the identification information indicates a wireless service provider of a
plurality of possible wireless service providers;
determining the wireless service provider for the portable computing device after
10 receiving the identification information;
the first access point receiving data from the portable computing device; and
providing network access to the portable computing device through the wireless
service provider determined in said determining.
- 15 2. The method of claim 1, wherein said first access point is operable to
accommodate subscribers of each of the plurality of possible wireless service providers.
3. The method of claim 2, further comprising:
the first access point recognizing a System ID (SID) of a plurality of possible
20 SIDs, wherein each of the plurality of possible SIDs is associated with a respective one of
the plurality of possible wireless service providers.
4. The method of claim 3, further comprising:
the first access point maintaining associations between the plurality of possible
25 SIDs and the plurality of possible wireless service providers.
5. The method of claim 3, further comprising:
the first access point maintaining associations between the plurality of possible
SIDs and a plurality of active subscribers.

6. The method of claim 2, further comprising:
the first access point broadcasting a plurality of possible SIDs, wherein each of the
plurality of possible SIDs is associated with a respective one of the plurality of possible
5 wireless service providers.

7. The method of claim 1, wherein said first access point is operable to
function as a wireless service provider access point for each of the plurality of possible
wireless service providers.

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8. The method of claim 1, wherein said first access point comprises computer
software which implements a plurality of virtual access points, wherein each virtual
access point corresponds to one of the plurality of possible wireless service providers, and
wherein each virtual access point provides network access services to the corresponding
15 wireless service provider.

9. The method of claim 8, wherein each virtual access point provides access
point functionality implemented in software, wherein each virtual access point appears as
a physical access point to the portable computing device.

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10. The method of claim 8, wherein each virtual access point (AP) executes a
wireless protocol stack.

11. The method of claim 10, wherein the wireless protocol stack comprises an
25 IEEE 802.11 wireless protocol stack.

12. The method of claim 8, wherein each virtual access point (AP) includes an
Extended Service Set ID (ESSID), and wherein each ESSID corresponds to one of the
plurality of possible wireless service providers.

13. The method of claim 1, wherein said providing network access comprises providing the data received from the portable computing device to a destination based on the determined wireless service provider.

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14. The method of claim 1, wherein the network system is useable by subscribers of each of the plurality of possible wireless service providers.

15. The method of claim 1, further comprising:
10 maintaining and storing a usage amount by the portable computing device;
wherein the determined wireless service provider charges for access by the portable computing device to the network.

16. The method of claim 1, wherein the network system includes a memory
15 medium which stores a data structure comprising a list of identification information and a corresponding list of the plurality of possible wireless service providers; and
wherein said determining the wireless service provider for the portable computing device includes accessing the memory medium and using the received identification information to determine the wireless service provider.

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17. The method of claim 1, wherein the network system includes a memory
medium which stores a data structure comprising a list of identification information, a
corresponding list of the plurality of possible wireless service providers, and associated
methods for providing data to the respective plurality of possible wireless service
25 providers; and

wherein said determining the wireless service provider for the portable computing device includes accessing the memory medium, using the received identification information to determine the wireless service provider, and using an associated method for providing the data to the wireless service provider.

18. The method of claim 17, wherein the data structure stores a destination address indicating a destination specified by the wireless service provider; and

wherein said providing the data comprises providing the data to the destination
5 specified by the wireless service provider.

19. The method of claim 1, wherein the plurality of access points are maintained by a first wireless service provider; and

wherein the identification information indicates a second wireless service
10 provider.

20. The method of claim 1, wherein the identification information comprises a System ID, wherein the System ID uniquely identifies the wireless service provider of the plurality of possible wireless service providers.

21. The method of claim 1, wherein the identification information comprises an Extended Service Set ID (ESSID), wherein the ESSID uniquely identifies the wireless service provider of the plurality of possible wireless service providers.

22. The method of claim 1, further comprising:

the first access point receiving identification information from a portable computing device, wherein the identification information indicates a first wireless service provider of the plurality of possible wireless service providers;

determining the first wireless service provider for the portable computing device
25 after receiving the identification information;

the first access point receiving data from the portable computing device;

providing the data received from the portable computing device to a destination associated with the first wireless service provider;

the first access point receiving identification information from a portable computing device, wherein the identification information indicates a second wireless service provider of the plurality of possible wireless service providers;

determining the second wireless service provider for the portable computing device after receiving the identification information;

the first access point receiving data from the portable computing device; and

providing the data received from the portable computing device to a destination associated with the second wireless service provider.

23. The method of claim 1,

wherein the plurality of access points are arranged at known locations in a geographic region, the method further comprising:

the first access point providing geographic location information indicating a known geographic location of the portable computing device;

wherein said providing network access comprises selectively providing network access to the portable computing device based on the known geographic location of the portable computing device.

24. The method of claim 1,

wherein the plurality of access points are arranged at known locations in a geographic region, the method further comprising:

the first access point providing geographic location information indicating a known geographic location of the portable computing device; and

determining an access level for the portable computing device after receiving the identification information;

wherein said providing network access comprises selectively providing network access to the portable computing device based on the known geographic location of the portable computing device and the determined access level.

25. The method of claim 1, further comprising:
determining an access level for the portable computing device after receiving the
identification information;
the first access point receiving data from the portable computing device; and
5 providing the data received from the portable computing device to a destination
based on the determined access level.

26. The method of claim 25, wherein said providing the data comprises:
providing the data to one or more resources on the network to allow the portable
10 computing device access to the one or more resources on the network if the access level is
a first access level; and
providing the data to a destination for external access out of the network to only
allow the portable computing device access to other networks if the access level is a
second access level;
15 wherein, if the access level is the second access level, the data is not provided to
the one or more resources on the network.

27. The method of claim 26, further comprising:
assigning a wireless communication channel for communication between the first
20 access point and the portable computing device.

28. The method of claim 27, wherein the first access point assigns the wireless
communication channel for communication between the first access point and the
portable computing device.

25 29. The method of claim 27, wherein said assigning comprises assigning the
wireless communication channel based on one or more of:
the identification information received from the portable computing device,
the determined wireless service provider, or

a determined access level for the portable computing device, wherein said determined access level is determined after receiving the identification information.

30. A network system, comprising:

5 a network; and

a plurality of access points coupled to the network, wherein each of the plurality of access points is operable to communicate with a portable computing device, wherein each of the plurality of access points is configured to receive identification information from the portable computing device indicating a wireless service provider of a plurality of possible wireless service providers;

10 wherein each of the plurality of access points is operable to determine the wireless service provider indicated in the identification information;

wherein network access is provided to the portable computing device through the determined wireless service provider.

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31. The network system of claim 30, wherein said first access point is operable to accommodate subscribers of each of the plurality of possible wireless service providers.

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32. The network system of claim 31, further comprising:

the first access point recognizing a System ID (SID) of a plurality of possible SIDs, wherein each of the plurality of possible SIDs is associated with a respective one of the plurality of possible wireless service providers.

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33. The network system of claim 32, further comprising:

the first access point maintaining associations between the plurality of possible SIDs and the plurality of possible wireless service providers.

34. The network system of claim 32, further comprising:

the first access point maintaining associations between the plurality of possible SIDs and a plurality of active subscribers.

35. The network system of claim 31, further comprising:

5 the first access point broadcasting a plurality of possible SIDs, wherein each of the plurality of possible SIDs is associated with a respective one of the plurality of possible wireless service providers.

36. The network system of claim 30, wherein said first access point is operable
10 to function as a wireless service provider access point for each of the plurality of possible wireless service providers.

37. The network system of claim 30, wherein at least one of said plurality of
access points comprises computer software which implements a plurality of virtual access
15 points, wherein each virtual access point corresponds to one of the plurality of possible wireless service providers, and wherein each virtual access point provides network access services to the corresponding wireless service provider.

38. The network system of claim 37, wherein each virtual access point
20 provides access point functionality implemented in software, wherein each virtual access point appears as a physical access point to the portable computing device.

39. The network system of claim 37, wherein each virtual access point (AP)
executes a wireless protocol stack.

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40. The network system of claim 39, wherein the wireless protocol stack comprises an IEEE 802.11 protocol stack.

41. The network system of claim 37, wherein each virtual access point (AP) includes an Extended Service Set ID (ESSID), and wherein each ESSID corresponds to one of the plurality of possible wireless service providers.

5 42. The network system of claim 30, wherein each of the plurality of access points is operable to provide data received from the portable computing device to a destination based on the determined wireless service provider.

43. The network system of claim 30, wherein the network system is useable by
10 subscribers of each of the plurality of possible wireless service providers.

44. The network system of claim 30, wherein the determined wireless service provider charges for access by the portable computing device to the network.

15 45. The network system of claim 30, further comprising:
a memory medium coupled to the network which stores a data structure comprising a list of identification information and a corresponding list of the plurality of possible wireless service providers;

wherein, in determining the wireless service provider for the portable computing
20 device, each of the plurality of access points is operable to access the memory medium and use the received identification information to determine the wireless service provider.

46. The network system of claim 45, wherein the memory medium is comprised in one or more of the access points.

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47. The network system of claim 30, further comprising:
a memory medium coupled to the network which stores a data structure comprising a list of wireless service provider identification information, a corresponding

list of the plurality of possible wireless service providers, and associated methods for providing data to the respective plurality of possible wireless service providers;

wherein, in determining the wireless service provider for the portable computing device, each of the plurality of access points is operable to access the memory medium, use the received wireless service provider identification information to determine the wireless service provider, and use an associated method for providing the data to the determined wireless service provider.

48. The network system of claim 47, wherein the memory medium is comprised in one or more of the access points.

49. The network system of claim 47, wherein the data structure stores a destination address indicating a destination specified by the determined wireless service provider; and wherein each of the plurality of access points is operable to provide the data to the destination specified by the determined wireless service provider.

50. The network system of claim 49, wherein the plurality of access points are maintained by a first wireless service provider; and wherein the identification information indicates a second wireless service provider.

51. The network system of claim 30, wherein the identification information comprises a System ID, and wherein the System ID uniquely identifies a wireless service provider of the plurality of possible wireless service providers.

52. The network system of claim 30, wherein the identification information comprises an Extended Service Set ID (ESSID), wherein the ESSID uniquely identifies the wireless service provider of the plurality of possible wireless service providers.

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53. The network system of claim 30, further comprising:

a portable computing device operated by a user, wherein the portable computing device includes the identification information, wherein the identification information indicates a first wireless service provider of the plurality of wireless service providers;

wherein, when a first access point of the plurality of access points receives the identification information from the portable computing device, the first access point is operable to determine the first wireless service provider; and

wherein the first access point is operable to provide data received from the portable computing device according to the first wireless service provider.

54. The network system of claim 30, further comprising:

one or more network devices coupled to the network, wherein each of the one or more network devices corresponds to one of the plurality of possible wireless service providers;

wherein each of the plurality of access points is operable to provide data received from the portable computing device to a network device corresponding to the determined wireless service provider.

55. The network system of claim 30, wherein each of the plurality of access points is operable to provide the data to the destination in a secure manner.

56. The network system of claim 30, wherein the plurality of access points are arranged at known locations in a geographic region, wherein each access point is operable to provide geographic location information indicating a known geographic location of the portable computing device; and

wherein network access is selectively provided to the portable computing device based on the known geographic location of the portable computing device.

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57. The network system of claim 30,
wherein the plurality of access points are arranged at known locations in a
geographic region, the method further comprising:

the first access point providing geographic location information indicating a
5 known geographic location of the portable computing device; and
determining an access level for the portable computing device after receiving the
identification information;

wherein said providing network access comprises selectively providing network
access to the portable computing device based on the known geographic location of the
10 portable computing device and the determined access level.

58. The network system of claim 30, wherein one or more of the plurality of
access points are operable to:

determine an access level for the portable computing device after receiving the
15 identification information; and

provide data received from the portable computing device to a destination based
on the determined access level.

59. The network system of claim 58, wherein, in providing the data, said one
20 or more of the plurality of access points are operable to:

provide the data to one or more resources on the network to allow the portable
computing device access to the one or more resources on the network if the access level is
a first access level; and

provide the data to a destination for external access out of the network to only
25 allow the portable computing device access to other networks if the access level is a
second access level;

wherein, if the access level is the second access level, the data is not provided to
the one or more resources on the network.

60. The network system of claim 30, wherein each of the access points is operable to assign a wireless communication channel for communication between the first access point and the portable computing device.

5 61. The network system of claim 30, wherein one or more of the access points are operable to assign the wireless communication channel based on one or more of:
 the identification information received from the portable computing device,
 the determined wireless service provider, or
 a determined access level for the portable computing device, wherein said access
10 level is determined by one of said one or more of the access points after receiving the identification information.

62. A method for providing roaming features on a wireless network system, wherein the wireless network system includes a plurality of access points coupled to a
15 network, the method comprising:

 a first access point receiving identification information from a portable computing device in a wireless manner, wherein the identification information indicates a wireless service provider of a plurality of possible wireless service providers;

 determining a wireless service provider for the portable computing device after
20 receiving the identification information;

 the first access point receiving data from the portable computing device in a wireless manner; and

 providing the data received from the portable computing device to a destination based on the determined wireless service provider.

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63. The method of claim 62, wherein said first access point is operable to accommodate subscribers of each of the plurality of possible wireless service providers.

64. The method of claim 63, further comprising:

the first access point recognizing a System ID (SID) of a plurality of possible SIDs, wherein each of the plurality of possible SIDs is associated with a respective one of the plurality of possible wireless service providers.

5 65. The method of claim 64, further comprising:

the first access point maintaining associations between the plurality of possible SIDs and the plurality of possible wireless service providers.

 66. The method of claim 64, further comprising:

10 the first access point maintaining associations between the plurality of possible SIDs and a plurality of active subscribers.

 67. The method of claim 63, further comprising:

15 the first access point broadcasting a plurality of possible SIDs, wherein each of the plurality of possible SIDs is associated with a respective one of the plurality of possible wireless service providers.

 68. The method of claim 62, wherein said first access point is operable to function as a wireless service provider access point for each of the plurality of possible wireless service providers.

20 69. The method of claim 62, wherein said first access point comprises computer software which implements a plurality of virtual access points, wherein each virtual access point corresponds to one of the plurality of possible wireless service providers, and wherein each virtual access point provides network access services to the

25 corresponding wireless service provider.

70. The method of claim 69, wherein each virtual access point provides access point functionality implemented in software, wherein each virtual access point appears as a physical access point to the portable computing device.

5 71. The method of claim 69, wherein each virtual access point (AP) executes a wireless protocol stack.

72. The method of claim 71, wherein the wireless protocol stack comprises an IEEE 802.11 wireless protocol stack.

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73. The method of claim 69, wherein each virtual access point (AP) includes an Extended Service Set ID (ESSID), and wherein each ESSID corresponds to one of the plurality of possible wireless service providers.

15 74. The method of claim 62, wherein the wireless network system is a distributed wireless network system.

77. The method of claim 62, wherein the network system is useable by subscribers of each of the plurality of possible wireless service providers.

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76. The method of claim 62, further comprising:
maintaining and storing a usage amount by the portable computing device;
wherein the determined wireless service provider charges for access by the portable computing device to the network.

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77. The method of claim 62, wherein the network system includes a memory medium which stores a data structure comprising a list of identification information and a corresponding list of the plurality of possible wireless service providers; and

wherein said determining the wireless service provider for the portable computing device includes accessing the memory medium and using the received identification information to determine the wireless service provider.

5 78. The method of claim 62, wherein the plurality of access points are maintained by a first wireless service provider; and

 wherein the identification information indicates a second wireless service provider.

10 79. The method of claim 62, wherein the identification information comprises a System ID, wherein the System ID uniquely identifies the wireless service provider of the plurality of possible wireless service providers.

 80. The method of claim 62, wherein the identification information comprises
15 an Extended Service Set ID (ESSID), wherein the ESSID uniquely identifies the wireless service provider of the plurality of possible wireless service providers.

 81. The method of claim 62,
 wherein the plurality of access points are arranged at known locations in a
20 geographic region, the method further comprising:

 the first access point providing geographic location information indicating a known geographic location of the portable computing device;

 wherein said providing network access comprises selectively providing network access to the portable computing device based on the known geographic location of the
25 portable computing device.

 82. The method of claim 62,
 wherein the plurality of access points are arranged at known locations in a geographic region, the method further comprising:

the first access point providing geographic location information indicating a known geographic location of the portable computing device; and

determining an access level for the portable computing device after receiving the identification information;

5 wherein said providing network access comprises selectively providing network access to the portable computing device based on the known geographic location of the portable computing device and the determined access level.

83. The method of claim 62, further comprising:

10 determining an access level for the portable computing device after receiving the identification information;

the first access point receiving data from the portable computing device; and

providing the data received from the portable computing device to a destination based on the determined access level.

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